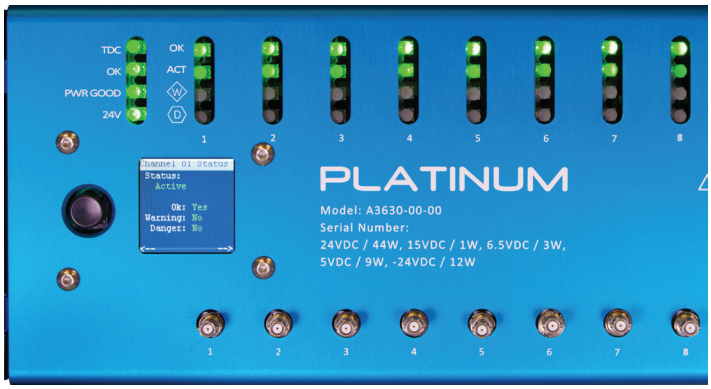
Performance Analysis

Machine Protection

Windrock

Condition Monitoring

Economic Evaluation



WINDROCK PLATINUM™ CRITICAL ASSET PROTECTION

Windrock Platinum provides continuous monitoring and in-depth condition information to protect critical machinery, improve safety, increase reliability and availability, and make cost-effective maintenance decisions.

Why Monitor Your Machinery with a Platinum System?

Protection against catastrophic failure

A Platinum system monitors key machinery parameters with every revolution of the machine. These parameters are measured, calculated, and evaluated after each revolution. Through onboard relays, ***it can shut down a machine immediately if catastrophic failure is imminent***. It can also communicate warnings and alarms to machinery control systems for alerts or shutdowns. Event record and playback capabilities allow in-depth degree-by-degree analysis of abnormalities.

Monitor mechanical condition

Effective reliability programs depend on accurate evaluation of equipment health. In addition to manufacturing the tools to monitor the health of reciprocating and rotating machines, Windrock provides the expertise to assess current and future conditions. The Platinum system's automated diagnostics provide a non-intrusive mechanical evaluation of the health of wear components, including valves, rings, packing, piston liners and rider bands.

In-depth performance analysis

The Platinum system ensures your machines are operating as designed, even when environmental and process conditions change. It evaluates power production/consumption, gas throughput and efficiency and compares the operation against theoretical and OEM designs. Additionally, the system performs valve efficiency comparisons, load step curve verification, clearance validation and rod load and reversal monitoring.

Support economic decision-making

With Platinum systems, you can measure the efficiency of compressors and related drivers to compare the economic return of different types of units across stations or enterprises. Using this information, you can make informed decisions on how to reduce fuel or electricity consumption while maximizing system throughput. A Platinum system also calculates performance degradation due to part wear and malfunctions, such as valve leakage, which can be used as an economic basis for performing repairs

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WINDROCK PLATINUM™

COMPRESSOR MONITORING

Accurate protection and assessment of a reciprocating compressor requires high-speed measurement and processing of dynamic data - most important is in-cylinder pressure relative to crank-angle. Used with thermodynamic calculations, pressure measurements provide the basis for total machinery monitoring, including protection, health, performance and economics. Vibration and Rod Position measurements play critical roles in machinery protection and condition monitoring.

		PRESSURE	VIBRATION	ROD POSITION
Protection				
	Cross-Head		X	X
	Frame		X	
	Rod Load/Reversal	X		
	Over Pressure	X		
	Rod Looseness		X	X
Condition Monitoring				
	Valve, Ring, Packing Leakage	X		
	Rider Band Wear			X
	Bearing Wear		X	
	Liner and Piston Wear		X	
	Rod Wear			X
	Internal/External Looseness		X	
Performance Monitoring				
	Power Consumed	X		
	Gas Throughput	X		
	System Efficiency and Validation	X		
Economic Monitoring				
	Compressor & Driver Efficiency	X		
	Recirculation Losses	X		
	Unit to Unit Comparison	X		

Windrock compressor monitoring technology is protected under US Patent #6292757.

ENGINE MONITORING

Platinum online engine monitoring systems utilize power cylinder pressure and vibration measurements to protect, assess health, monitor performance and derive economic data. The addition of frame and turbocharger vibration measurements provides additional protection and condition monitoring.

An AutoBalance® module works in conjunction with the Platinum system to provide automatic, continuous, peak pressure balancing for large bore, natural gas-fired engines. Maintaining a properly balanced engine reduces emissions, cuts fuel consumption, reduces mechanical wear, decreases maintenance costs and improves overall machine reliability.

		PRESSURE	VIBRATION	AUTO BALANCE
Protection				
	Unstable/Poor Combustion	X	X	X
	Excessive Frame Vibration		X	
	Turbocharger and Component Failure		X	
Condition Monitoring				
	Quality of Combustion	X		
	Worn valve train components	X	X	
	Liner and Piston Wear		X	
	Internal / External Looseness		X	
	Bearing Wear		X	
Performance Monitoring & Improvement				
	Power Produced	M		
	Overall Engine Balance	M		I
	Emission Reduction			I
	Maintenance Optimization			I
	Fuel Economy Improvement			I
Economic Monitoring				
	Engine Efficiency	X		
	Unit to Unit Comparison	X		

Windrock AutoBalance® engine system is protected under US Patent #8522750.
Please note that in the table, M represents Monitoring and I represents Improvement.

Want to know more? Contact us.

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